

CLAIMS

- 1 1. In an intermediate node of a data network that comprises one or more virtual local
2 area networks (VLANs), the intermediate node containing a forwarding database com-
3 prising one or more forwarding database entries, a method for controlling flooding of
4 packets on a VLAN comprising the steps of:
5 establishing a limit that indicates a number of forwarding database entries that
6 may be associated with the VLAN;
7 determining if a number of forwarding database entries associated with the VLAN
8 matches the limit established for the VLAN; and
9 if so, performing an action for controlling the flooding of packets on the VLAN.
- 1 2. A method as defined in claim 1 wherein the intermediate node contains a media
2 access control (MAC) limit database comprising one or more MAC limit database entries
3 wherein each entry is associated with a VLAN and contains a MAC limit that indicates a
4 number of forwarding database entries associated with the VLAN and a MAC count that
5 indicates a number of forwarding database entries associated with the VLAN.
- 1 3. A method as defined in claim 2 comprising the steps of:
2 locating a MAC limit database entry associated with the VLAN; and
3 comparing the MAC count of the MAC limit database entry with the MAC limit
4 of the MAC limit database entry to determine if the number of forwarding database en-
5 tries associated with the VLAN matches the limit established for the VLAN.
- 1 4. A method as defined in claim 2 comprising the steps of:
2 accessing a forwarding database entry associated with the VLAN;
3 locating a MAC limit database entry associated with the VLAN;
4 comparing the MAC count of the MAC limit database entry with the MAC limit
5 of the MAC limit database entry to determine if the MAC count matches the MAC limit;
6 and
7 if not, updating the MAC count.

- 1 5. A method as defined in claim 1 wherein the action includes logging a message to
2 a log accessible to the intermediate node.
- 1 6. A method as defined in claim 1 wherein the action includes disabling flooding for
2 the VLAN.
- 1 7. A method as defined in claim 1 wherein the action includes disabling forwarding
2 packets for the VLAN.
- 1 8. A method as defined in claim 1 wherein the action includes disabling learning for
2 the VLAN.
- 1 9. A method as defined in claim 1 comprising the steps of:
2 acquiring a packet wherein the packet is associated with the VLAN;
3 determining if the VLAN is shut down; and
4 if so, dropping the packet.
- 1 10. A method as defined in claim 1 comprising the steps of:
2 acquiring a packet wherein the packet is associated with the VLAN;
3 determining if the forwarding database contains an entry which contains a MAC
4 address that matches a source address contained in the packet;
5 if not, determining if learning is disabled for the VLAN; and
6 if not, generating a forwarding database entry that contains the source address of
7 the packet.
- 1 11. A method as described in claim 1 comprising the steps of:
2 acquiring a packet wherein the packet is associated with the VLAN;
3 determining if the forwarding database contains an entry which contains a MAC
4 address that matches a destination address contained in the packet;
5 if not, determining if flooding is enabled for the VLAN; and

6 if so, flooding the packet.

1 12. An intermediate node coupled to a data network containing one or more VLANs,
2 the intermediate node comprising:

3 a forwarding database containing one or more entries wherein each entry is asso-
4 ciated with a node accessible to the intermediate node and wherein each entry is associ-
5 ated with a virtual local area network (VLAN); and

6 a processor configured to, for each VLAN, (i) establish a limit for the VLAN
7 wherein the limit indicates a number of forwarding database entries that may be associ-
8 ated with the VLAN, (ii) determine if a number of entries in the forwarding database as-
9 sociated with the VLAN matches the limit established for the VLAN, and (iii) if so, per-
10 form an action for controlling the flooding of packets on the VLAN.

1 13. An intermediate node as defined in claim 12 further comprising:

2 a media access control (MAC) limit database having one or more MAC limit da-
3 tabase entries wherein each entry is associated with a VLAN and contains a MAC limit
4 that indicates a number of forwarding database entries associated with the VLAN and a
5 MAC count that indicates a number of entries in the forwarding database associated with
6 the VLAN.

1 14. An intermediate node as defined in claim 13 wherein the processor is configured
2 to, for each entry in the forwarding database, compare the MAC count with the MAC
3 limit of the VLAN associated with the forwarding database entry to determine if the
4 MAC count matches the MAC limit.

1 15. A intermediate node as defined in claim 13 wherein the processor is configured to
2 update the MAC count if the MAC count does not match the MAC limit.

1 16. An intermediate node as defined in claim 12 wherein the action includes logging a
2 message to a log accessible to the intermediate node.

1 17. An intermediate node as defined in claim 12 wherein the action includes disabling
2 flooding for the VLAN.

1 18. An intermediate node as defined in claim 12 wherein the action includes disabling
2 forwarding packets for the VLAN.

1 19. An intermediate node as defined in claim 12 wherein the action includes disabling
2 learning for the VLAN.

1 20. A system comprising:
2 a forwarding database comprising one or more forwarding database entries asso-
3 ciated with a VLAN;
4 means for establishing a limit wherein the limit indicates a number of entries
5 contained in the forwarding database associated with the VLAN;
6 means for determining if a number of entries in the forwarding database associ-
7 ated with the VLAN matches the limit established for the VLAN; and
8 means for performing an action for controlling the flooding of packets on the
9 VLAN, if the number of entries in the forwarding database associated with the VLAN
10 matches the limit established for the VLAN.

1 21. A system as defined in claim 20 comprising:
2 a media access control (MAC) limit database comprising one or more MAC limit
3 database entries wherein each entry is associated with a VLAN and contains a MAC limit
4 that indicates a number of forwarding database entries associated with the VLAN and a
5 MAC count that indicates a number of entries in the forwarding database associated with
6 the VLAN.

1 22. A system as defined in claim 20 comprising:
2 means for accessing an entry in the forwarding database associated with a VLAN;
3 means for comparing a MAC count with a MAC limit associated with the VLAN
4 to determine if the MAC count matches the MAC limit; and

5 means for updating the MAC count, if the MAC count does not match the MAC
6 limit.

1 23. A computer readable medium containing computer executable instructions for
2 controlling the flooding of packets on a VLAN, the computer readable medium contain-
3 ing computer executable instructions for:

4 establishing a limit of a number of forwarding database entries associated with the
5 VLAN;

6 determining if a number of entries in the forwarding database associated with the
7 VLAN matches the limit established for the VLAN; and

8 if so, performing an action for controlling the flooding of packets on the VLAN.